

Also inside: Memo to Microsoft: Copy IBM 36  
Smart Buildings Pose Big Risks 8

# COMPUTERWORLD

Enterprise Innovation From Core to Edge | COMPUTERWORLD.COM | JUNE 9, 2014

## SURVIVING THE VENDOR SHAKEUP

New technology trends are  
creating a **once-in-a-career**  
**opportunity** for savvy CIOs.

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# Can a move spark a **transformation?** See it happen with System x.

You've probably heard that IBM® and Lenovo have entered into a definitive agreement whereby Lenovo plans to acquire the IBM System x® server business.<sup>1</sup> This is big news, and it is natural for clients to have a few concerns. This letter from all of us on the System x team is to assure you, our clients, that this strategic collaboration is a benefit for the industry and especially for you.

## **Perfect Collaboration.**

Both IBM and Lenovo are dedicated to a larger vision for x86 systems. IBM has long been a leader in client-focused innovation of System x servers and solutions, featuring Intel® Xeon® processors. Lenovo is committed to x86 computing and has a proven record of success, as evidenced by their #1 share position in PCs. By leveraging their strengths in scalability and operational efficiency and a broad channel presence, Lenovo will be able to ensure uninterrupted delivery of the innovative System x servers and solutions that IBM offers today. This will create the winning combination to make System x a leader in the x86 segment.

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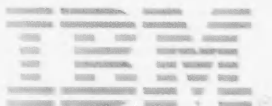
Our respective commitments to excellence mean you can continue to rely on getting the performance, reliability and return on investment you expect for your IT infrastructure. Our team has always been dedicated to delivering exemplary levels of service. We are happy to inform you that IBM will continue to service the System x-installed base for an extended period after the transaction closes, so you will experience the same quality and accountability that you have come to trust over the years. What's more, we – the 7500 members of the IBM team that delivers System x servers – will continue to do the same, as we will also move to Lenovo.

At IBM, we have always been proud of our ability and commitment to meet the needs of our clients. This announcement opens new avenues for us to expand and improve on this tradition.

Please do visit [www.ibm.com/futureofx](http://www.ibm.com/futureofx) to learn more about this development.

Sincerely,

The entire System x Team



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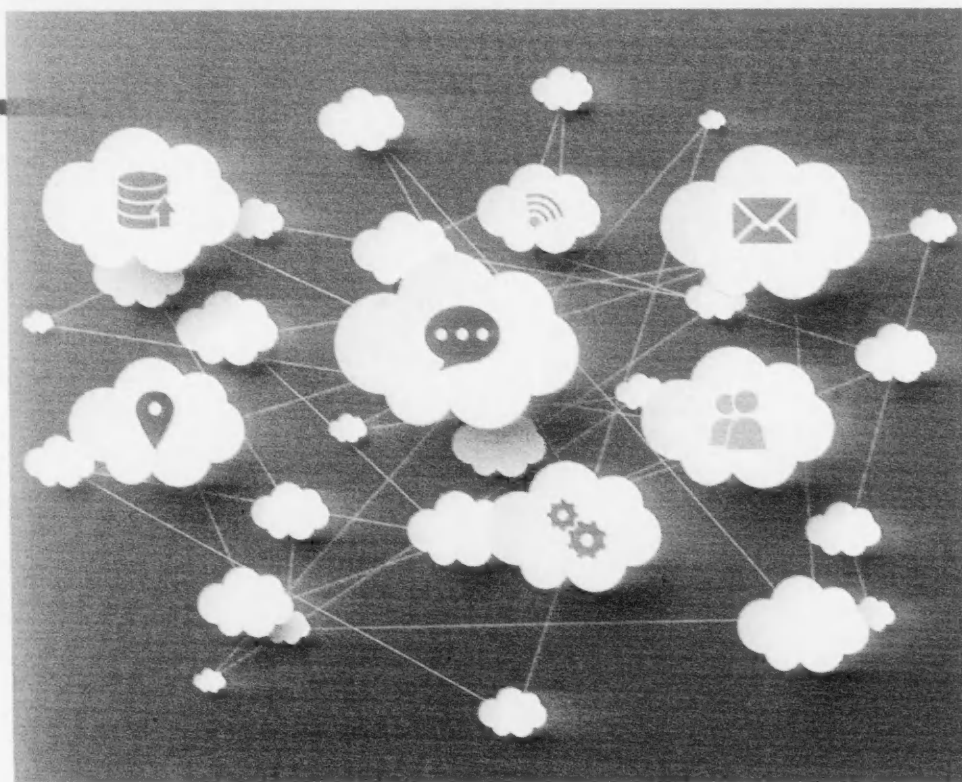
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# HeadsUp



THINKSTOCK

## MOBILE TECH

### Cautious Optimism About the IoT in 2025

**T**HE RESULTS of a Pew Research Center survey about what the Internet of Things will look like in 2025 suggest that people are optimistic about the technology — though some respondents did voice questions and doubts.

About 1,600 people with expertise in the IoT — from fields such as IT, academia, consulting and law — responded to a Pew survey question about the IoT, and 83% agreed that the network of devices, appliances, sensors and wearable systems will “have widespread and beneficial effects” by 2025.

The report included a written response from Karl Fogel, a partner at open-source consultancy Open Tech Strategies, who offered this scalding take on wearables: “No, yuck, we don’t need this, and most people aren’t asking for it.”

Lee Rainie, director of Pew’s Internet

Project, said the report is based on an opt-in survey, and that its thrust is qualitative rather than quantitative. While an overwhelming majority of respondents said the IoT “will be a big force in the culture,” he acknowledged that the respondents did include a lot of caveats, with many responses in the “yes, but” category.

Respondent Bob Briscoe, chief researcher in networking and infrastructure at British Telecom, predicted that industrial and medical IoT systems, not consumer applications, are the most likely to take off.

Promising areas for use of IoT technologies are supply chain logistics and workforce administration, he wrote, adding that “attention-grabbing consumer widgets [will] have only superficial economic effect.”

— Patrick Thibodeau

## CYBERSECURITY

### Retailers Unite to Share Threat Data, Improve Security

Some of the largest U.S. retailers have banded together to share information about cyberthreats.

Target, Gap Inc., Walgreens and J.C. Penney are among the members of the new organization, called the Retail Cyber Intelligence Sharing Center or R-CISC. They plan to share information about malware, activity on underground forums and software vulnerabilities with one another. They will also share anonymized data with government agencies such as the Department of Homeland Security, the Secret Service and the FBI.

The retailers founded R-CISC in the wake of last year’s data breach at Target in which millions of payment card details and other personal records were lost.

The effort’s success will hinge on the amount of data retailers can gather and their willingness to share it.

“We are confident that by sharing with our peers and industry stakeholders... our industry will collectively strengthen its ability to protect critical customer information,” said Warren Steytler, vice president of information security at R-CISC member Lowe’s.

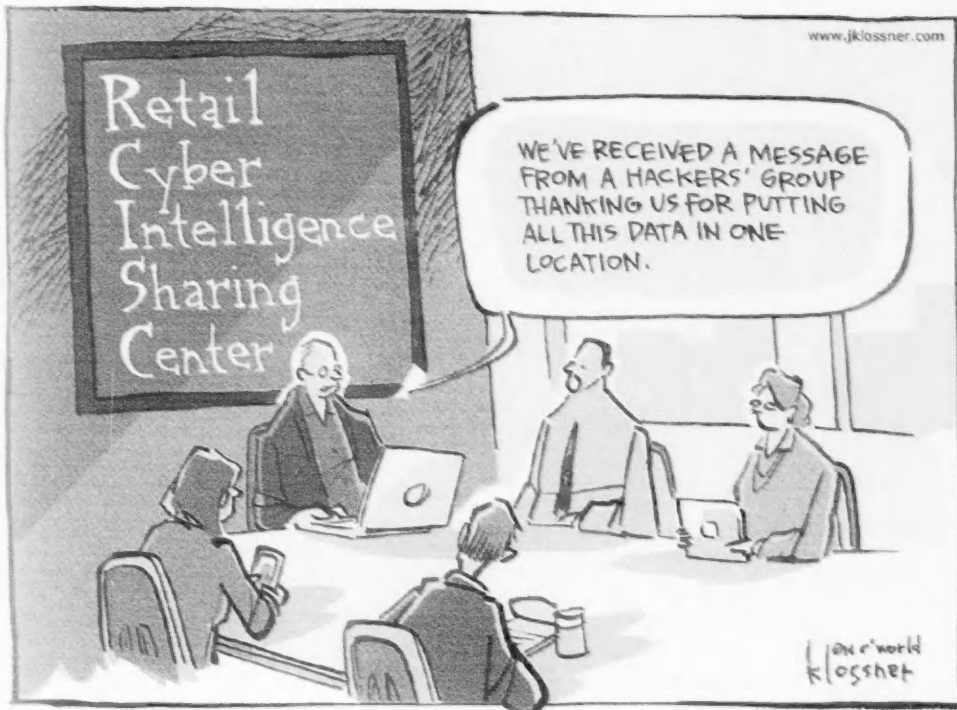
Other members include American Eagle Outfitters, Nike, Safeway and VF Corp., maker of the Vans and Nautica lines of shoes and clothing.

— ZACH MINERS,  
IDG NEWS SERVICE

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## BETWEEN THE LINES

By John Klossner



## SECURITY

# Numerous Groups Use Elderwood Hacks

**F**URTHER INVESTIGATION into an exploit kit known as Elderwood shows that attackers using it are more numerous and possibly better funded than previously thought, according to new research from Symantec.

Elderwood is a hacking platform that abuses vulnerabilities in programs, including Adobe's Flash and Microsoft's Internet Explorer browser, to spy on computers.

Symantec has been tracking Elderwood since 2012, noting that exploits contained in it have been used in the so-called "Operation Aurora" attacks against defense-related companies, people involved in human rights campaigns, and IT and supply-chain companies.

Symantec now thinks several hacking groups are using Elderwood, indicating that its original developer may be selling the platform. Another possibility is that core Elderwood hackers are developing exploits for their own in-house teams, the company wrote in a recent blog post.

"The attack groups are separate entities with their own agendas," Symantec wrote.

Those groups include Hidden Lynx, which targets the defense industry and Japanese users; Vidgrab, which focuses on Uighur dissidents in western China; Sakurel, which targets aerospace companies; and one that goes by Linfo or Icefog that targets manufacturing companies.

At the start of this year, the Elderwood exploit kit contained three zero-day vulnerabilities — one for Flash and two for IE.

One clue that all of the groups may be closely connected is the use of shared infrastructure: The Flash exploit and one for IE were hosted on the same server but used by all four groups, Symantec wrote.

Creating attack code for those vulnerabilities isn't cheap, which suggests if hacking groups are purchasing the exploits from Elderwood's developer, those organizations "must have substantial financial resources."

— Jeremy Kirk, IDG News Service

## Micro Burst

IT CAREERS

Google, Intel, Apple and Adobe will pay

**\$324.5 MILLION**

to settle a suit charging that they secretly agreed not to poach workers.

SOURCE: U.S. DISTRICT COURT FILING

## OPERATING SYSTEMS

# Moving Beyond Windows, AMD to Support Android

Advanced Micro Devices has finally provided concrete details about its plans to move beyond Windows and add Android support to its chips.

AMD recently said it will support Android on its 64-bit ARM-based chips starting next year. It made the announcement at a press conference where it unveiled Project SkyBridge, a series of products that will provide the plumbing for ARM and x86 cores to be interchanged or combined on a single motherboard.

The chips made as part of Project SkyBridge could appear in ultrathin client devices — which may include tablets — and also embedded devices, said Lisa Su, general manager of AMD's global business units, during the media event.

The company isn't targeting smartphones, because it wants to focus on products that can deliver a strong computing and graphics experience, Su said.

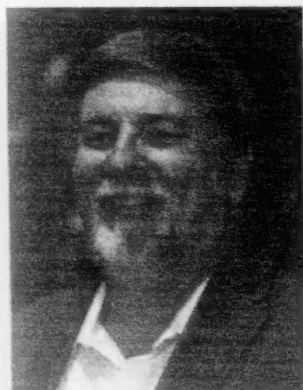
AMD has to add support for Android if it wants to compete in the market for tablets and thin-and-light devices, analysts said.

With Android support, ARM chips "would go into tablets and [potentially] into clamshells," said Nathan Brookwood, an analyst at Insight 64.

— AGAM SHAH,

IDG NEWS SERVICE

## VIEWPOINT

**Rick Mattock**

SENIOR VICE PRESIDENT OF  
PRODUCT MARKETING AT  
RMG NETWORKS

Having created market-leading products with technologists in India, Argentina, and the United States, Rick has a great sense of organizational IT needs across a broad swath of user types and geographies.

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## Brave New World of Visual Communication

Digital signage drives productivity gains while lowering costs

What is digital signage and what IT and/or organizational challenges or problems does it solve?

Digital signage is an all-encompassing term for the software, hardware, and services that people use to communicate visually. It gives organizations, departments, or companies a voice to their customers, visitors, or employees. Digital signage enhances the customer experience by increasing the sale of high-ticket or high-margin products, and it enhances the work environment by increasing productivity and morale. It's really a communications platform.

We've seen this technology for a while, largely in the retail sector. What's a good use case outside of that vertical?

A good use of digital signage is in large, geographically dispersed call centers that share incoming calls. Studies show that putting real-time data up on screens in interesting and dynamic ways materially increases employee performance. Additionally, by integrating into the call centers' phone systems, a digital signage provider can show when calls are being routed to different centers based on workload and other variables.

This seems like the kind of solution that could attract LOB managers, true?

Absolutely. Digital signage is going to be a key platform as companies go toward the "gamification" of work. Many advanced companies are looking at these systems to scoreboard how their teams are doing, then building in reward systems.

What are the central elements of the value proposition of real-time digital signage?

The most powerful untapped source of productivity and motivation in a company is visible real-time data. For example, if you work in a call center, and you see a big queue up on a digital screen, you will work faster through that queue. That's the central value proposition by far. Other elements of the

value proposition come from the use of that data or the different levels of the consumers of that data. Our system allows you to have a pop-up window on your laptop, desktop, phone, or tablet. The idea is that there is a layer of real-time information that's being harvested at the appropriate frequency, and everyone gets and sees what they need in order to perform better.

What does RMG bring to the digital signage and business visualization market that is unique?

RMG has two unique offerings. First, the company itself has all different types of digital signage. In fact, RMG Networks has a media side, selling advertising. One of our biggest networks is on the back of airline seats and in carrier lounges. We also have creative and installation services, making us a one-stop shop for all things digital signage. Our uniqueness also stems from our longevity in the market. RMG has been building these systems for years. We have a very robust data integration layer that allows you to do centralized data integration across all different domains and business subsystems. Our systems have been through the gauntlet in terms of security and stability.

Have you been able to document real ROI with these kinds of solutions?

With data or business visualization, ROI comes from productivity increases and cost reductions. For example, one distribution center proved a 1 percent productivity gain, which will save \$55 million annually when deployed to all their centers. Revenue-generating activities, such as using digital signage for advertising, provide another calculable ROI. In call centers, we have documented the reduction of the number of calls in queue and average talk time. Finally, in internal communications, we prove a 20 percent reduction in turnover just by consistently communicating company messages. ■

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With the Surface Pro 3, Microsoft continues its strategy of pushing tablet-notebook hybrids.

# Will Apple Follow Microsoft's Path?

Tim Cook criticized the idea of blending tablets and notebooks two years ago, but experts say it may be time for him to reconsider. **By Gregg Keizer**

**“YOU CAN CONVERGE** a toaster and a refrigerator, but those things are probably not going to be pleasing to the user,” Apple CEO Tim Cook said in 2012. Cook was criticizing the idea of blending tablets with notebook PCs. And while he didn’t know it at the time, the target of his ire was a hardware design strategy that Microsoft would one day embrace.

He railed against the hybrid approach. “Anything can be forced to converge,” he acknowledged, but added that such products involve so many trade-offs that “what you have left at the end of the day doesn’t please anyone.” Apple has done nothing since to indicate that it has changed its tune.

Two years later, a Microsoft CEO — the newly minted Satya

Nadella — responded to Cook’s rant.

“We clearly are not interested in building refrigerators or toasters,” Nadella said last month as he unveiled the Surface Pro 3 — Microsoft’s latest revamp of the design mashup that Cook knocked.

Nadella expressed confidence that Microsoft’s vision is sound. “Can we design and build a device that takes the best of the tablet and the laptop and enables any individual to be able to read, and to be able to create and write? [A device that] allows you to watch a movie and make a movie, enjoy art and create art?” he asked. “That’s the device we want to create.”

Strong stuff, lyrical even. But would it change Cook’s mind and elicit a reaction from Apple?

“When has Apple ever reacted?” asked Jack Gold, principal analyst at J.Gold Associates.

True enough. Punditry’s battleground is littered with the bones of those who have said Apple had to do this, or must do

that, to counter rivals’ moves.

Still. What if Microsoft is right?

The Surface Pro 3 shouldn’t “force [Apple] to make a defensive move,” said Patrick Moorhead, an analyst at Moor Insights & Strategy. “There may be some rethinking at Apple if the Surface Pro 3 gets some traction, but I think it would be more about what does that mean to a MacBook Air than an iPad.”

Some say a clash is inevitable; not because the companies need to duke it out, but because tablets are popular.

Carolina Milanesi, chief of research at Kantar Worldpanel ComTech, said Apple might want to re-evaluate the tablet-notebook combo, noting that an iPad with a larger screen, say the 12-inch size of the Surface Pro 3, would cry out for a keyboard — and that would be a good thing.

Her logic? To make the iPad Mini, Apple went smaller than the original iPad’s 9.7-inch display. What’s left is to go bigger, especially if the company wants to push the iPad into the corporate market, as Cook has expressed a desire to do. “A keyboard would make all the difference,” Milanesi said. “It would give an iPad the full productivity experience. I think they need to do something.”

Apple has eaten its words before: Think the iPad Mini or its decision to sell e-books. And more important, Cook hasn’t mocked the tablet-notebook form factor since 2012.

Or maybe everyone has it backward. Maybe Nadella wasn’t trying to challenge Apple when he said Microsoft had no interest in building toasters or refrigerators. Maybe he was trying to say that the two companies are on the same hardware page after all. ♦

**There may be some rethinking at Apple if the Surface Pro 3 gets some traction, but I think it would be more about what does that mean to a MacBook Air than an iPad.**

— PATRICK MOORHEAD, ANALYST, MOOR INSIGHTS & STRATEGY



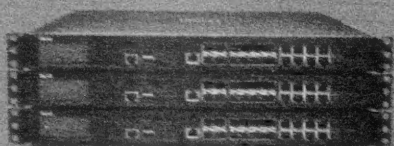
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# Smart Buildings Pose Big Risks

IT must expand security policies to reflect the role the Internet of Things plays in facilities management. **By Jaikumar Vijayan**

**E** **ELIMINATING SECURITY RISKS** should be the first thing enterprises do before using Web-enabled technologies to manage building equipment such as elevators or heating, lighting or ventilation systems.

There's a plethora of Web-enabled building management systems that are tightly integrated with networks like the smart grid, and many IT managers hope they can use them to make their companies' facilities more energy efficient, secure and responsive to changing conditions.

However, analysts say IT should vet Web-enabled intelligent systems to ensure that they have adequate safeguards to fend off hackers. Many such technologies are vulnerable to attacks that could disrupt building operations and, worse, give hackers access to enterprise systems.

Last year's massive breach of Target's systems, for instance, was launched by a hacker that found a way into the retailer's

network using the access credentials of a contractor that had remotely maintained Target's heating, ventilation and air conditioning (HVAC) system. Security experts say the hacker's plan worked because Target didn't properly segment its data network.

Such incidents could become more common as buildings and management systems grow increasingly intelligent and interconnected, said Hugh Boyes, cybersecurity lead at the Institution of Engineering and Technology.

"It creates some interesting challenges for enterprise IT," Boyes said. "They need to know there are some increasingly complex networks being put into their buildings that are running outside of their control."

The systems are generally connected via IP networks to third-party suppliers or service providers, which often capture data for real-time decision support as well as longer-term analysis.

Such setups are particularly dangerous because many communications protocols for building automation and control networks, such as BACnet and LonTalk, are open and transparent, said Jim Sinopoli, managing principal at Smart Buildings LLC, an engineering and design firm.

Those protocols appeal to device manufacturers because they enable product compatibility and interoperability, but their openness and transparency put building automation networks at risk, Sinopoli said. "None of these systems are isolated any longer," he said, noting that a security breach in one system could have a cascading effect on multiple building automation systems and networks.

Rolf von Roessing, president of German security consulting company Forta, advises IT managers to extend corporate information security and cybersecurity processes to cover buildings and building management systems.

A survey by security researcher SANS Institute revealed that many IT managers are aware of the risks of smart buildings. The security of smart buildings and industrial control systems was the second-most common answer — just behind consumer devices — when respondents were asked about the concerns they have with regard to the Internet of Things, said John

Pescatore, director of emerging security trends at SANS.

To reduce risks, companies should pay more attention to network segmentation, strong authentication and network monitoring as well as vendor management processes, said Robert Stroud, international president of ISACA, a trade group focused on IT governance issues.

Moreover, he added, IT must work with building management teams to update vendor rosters and put together lists of emergency contacts. ♦

“ [IT managers] need to know there are some **increasingly complex networks** ... that are running outside of their control.

— HUGH BOYES, CYBERSECURITY LEAD, INSTITUTION OF ENGINEERING AND TECHNOLOGY

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# THE Grill

## Brian A. Haugabrook

This university CIO uses analytics to help boost graduation rates.

**Hometown:** Cordele, Ga.

**Family:** Married with two sons, ages 4 and 2, and two dogs

**Hobbies:** Fishing, hunting and hiking. "When I do those things, I don't take any technology. I know it's important to be out in the world."

**Can you share an interesting fact about yourself?** "I love helping people, and I want to have a global impact with what I do."

**What's your proudest accomplishment?** "Building an innovative team at VSU [that has] achieved national recognition."

**Where's your favorite vacation spot?** "Anywhere near the ocean."

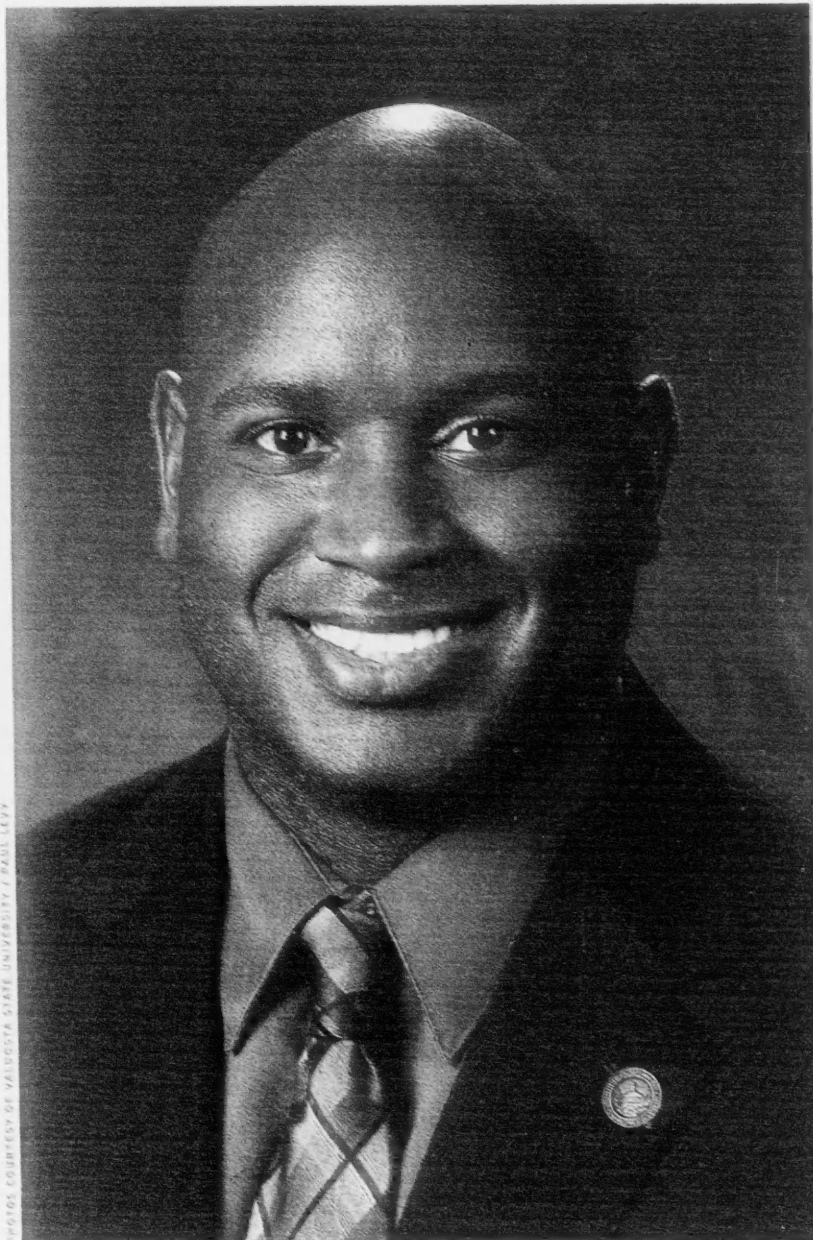


PHOTO COURTESY OF VALDOSTA STATE UNIVERSITY / PAUL LEVY

**A**S INTERIM CIO at Valdosta State University in Georgia, Brian A. Haugabrook must ensure that the school's IT systems meet the needs of faculty, staff and 12,000-plus students. But he says an effective IT operation must do more than keep computers and networks running. It must also help the university fulfill its mission by giving officials a way to reach out to students at risk of failing. To do that, Haugabrook deployed analytics tools that allow faculty and staff members to determine which students need extra help and then coordinate that support. Less than two years into the project, the tools are yielding results. Here, Haugabrook talks about how VSU's IT department is helping to improve graduation rates.

**The university is using BI tools to improve student retention and success. How did this strategy come about?** The initial discussion started with the Complete College America initiative. We started Complete College Georgia in 2011. The goal is to graduate more students over the next six years. In that plan, the first critical goal is analytics — having more data-driven decisions, having a better understanding





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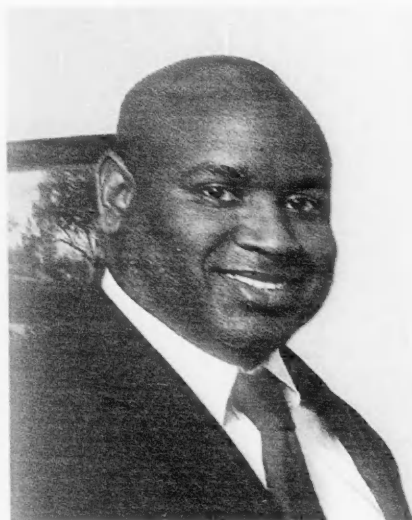
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RESEARCH PANEL



of who your students are, the needs of your students. Our student support area, our advising, those are the areas key to student success. So we didn't focus on administrative reports; we focused on everything key to faculty, advisers and support services, to give them the information they need so they could tell which students were at risk. That's how we planned it out from the beginning.

**What technology and business processes did you implement to support this plan?** The first thing we did is decide that if we wanted to be innovative, we had to build a team. We created a team, changed our organizational structure. We partnered with our institutional research department, because we knew that partnership would be

We also measured course completion and grades. In introductory math, we saw a 5% increase in passing grades. That was in the first year.

**How are you using analytics?** We did a pilot in our math program. We found that math is a gateway course. If a student can't get passed through, there's a high chance they're going to drop out of college. We looked back over five years of data and created a model to see, based on what we know about a student, if they were likely to pass. We came up with an accurate formula. If we know a student won't do well, we now have them register for a lower-level course where they can get extra support and if they do well they can move up and get credit for that upper-level course.

**What's next for your team around analytics?** Our next big goal is to incorporate the unstructured data. In the past, you have the students' grades, GPA, the kind of standard models. Now we want to measure engagement. We know students who are more engaged have a higher level of success. So how do we measure engagement? We worked with Oracle again. They have a tool called Endeca Information Discovery. We did a concept to mine unstructured data — data from surveys, data from social media sites and databases we have — to see if this tool can give us value to that data. We were able to merge in all the information we have on students — whether they purchased meals, go to our cafeterias to eat, whether they checked out a library book, go to our rec center. We can pull in all that data using that Oracle tool to see what makes an engaged student and how that influences success rates.

**We know students who are more engaged have a higher level of success. So how do we measure engagement?**

key to success, putting the right people on the bus in the right seat. Then we looked at what technologies were available. We found that we could quickly adapt with Oracle, and using the Oracle BI tools we could build out reports in days instead of months.

**How are you using these tools?** We have a two-phase approach: getting data out and then pushing data into the system. So we use Oracle Application Express to provide that two-way communication. That's a key component, the whole life cycle of delivering data to faculty. They can use the tools to say, "Yes, this student is at risk and they need additional services." It was this combination that allowed us to quickly adapt to business needs. The first phase with those two tools began in January 2012 and was implemented in August 2012. It was released to our Freshman Learning Community faculty, which was about 10% of our faculty. But within two months the word spread around campus about how useful it was, so in mid-September it was released to all faculty.

**Have you seen improvements because of this insight?** On this first phase, we saw an overall increase of 2% in our retention rate. That's huge. We measured how often faculty used it, and for faculty who used the tool frequently, their retention rate jumped 4% in one year.

**Any insights gleaned from that?** One of the first things I wanted to know was whether eating breakfast really does make a difference. Within one minute we could dig through all that data. Our overall retention rate is in the 70s, but students who eat breakfast are in the mid-80s. That's not to say eating breakfast is a cause, but now we can dig deeper.

**What was your biggest challenge during this project?** It took a cultural change to focus on BI, because IT has traditionally been focused on keeping the campus running. So it was a big change, creating a different team, moving people around. And any cultural change takes a few years. Now we see our other areas of IT becoming more innovative. For example, our technical support services team, they're creating a technical response unit. They're redefining what technical support is, and they're creating a rapid response. If someone calls with a problem and it can't be handled over the phone in five minutes, they'll have someone at the office in 15, so people aren't held up by technology and will have the support they need from IT.

— Interview by Computerworld contributing writer  
Mary K. Pratt (marykpratt@verizon.net)



OPINION

# THORNTON A. MAY

## The Time Is Now for Information Governance

The real value of information cannot be fully realized unless data is properly governed.

**INFORMATION GOVERNANCE** is fast becoming a required competence for IT — even though we've barely become conscious of what it is.

At a series of university-based research initiatives and industry conferences, I presented executives with the following aural Rorschach

test: When you hear the phrase "information governance," what is the first thing that leaps to mind? I was surprised at the diversity of responses: analytics, business intelligence, compliance, data governance, data hygiene, defensible disposal, document management, e-discovery, enterprise architecture, enterprise content management, information life cycle, information risk (the risks associated with how employees handle information), machine learning, master data management, metadata, model management, privacy, records management, regulations, risk, Edward Snowden, structured/unstructured data, and famously breached retailer Target.

As that list suggests, information governance covers a lot of ground — the entire spectrum of information management, in fact.

The real value of information cannot be fully realized unless data is properly governed. And yet, in many organizations, information governance is an amorphous, undefined concept. It needn't be. Here are three perfectly practicable definitions:

1. *The activities and technologies that organizations employ to maximize the value of their information while minimizing associated risks and costs.*
2. *The practice of identifying the electronic content to be managed and how that will be done.*
3. *All the processes, policies, standards and tools that consistently define and manage the critical data of an organization.*

But definitions don't drive behavior. And the existing frameworks, vocabulary and practices for information governance are tragically immature.

One challenge is that many organizations have

erroneously framed information governance as a compliance issue, as if it were all about managing the information they're required to store and make available to regulatory agencies. A compliance mindset, driven by the fear of prosecution, results in reactive tactical programs that don't engage the hearts and minds of employees.

You can get on the path to effective information governance by answering four basic questions:

1. *Who is responsible for information governance?*
2. *What are the economics of it?*
3. *What is being stored?*
4. *What should we be doing?*

But answering those questions can be surprisingly complicated.

Take the third question, "What is being stored?" Information storage is a veritable gold mine of opportunity. IDC predicts that enterprise data growth will average around 50% per year through 2016, with storage costs consuming nearly 20% of the typical IT budget in 2014.

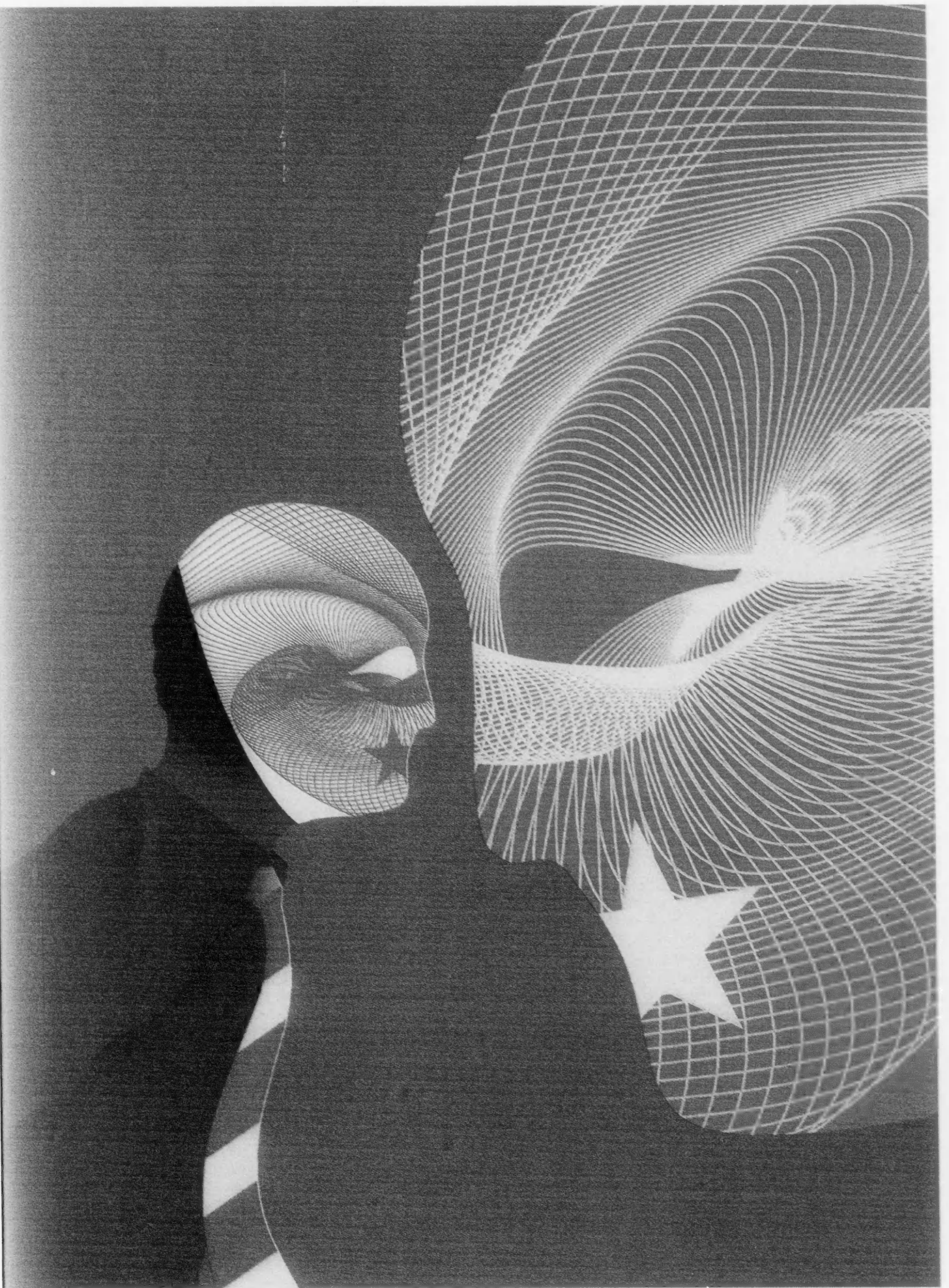
But the Compliance, Governance and Oversight Council has found that 69% of information in companies has no business, legal or regulatory value. Now consider that analysts estimate that every gigabyte of data that can be justifiably removed from corporate databases saves an average of \$18,000. That gives you an idea of the magnitude of the information governance opportunity. And that is just on the savings side.

Information governance is important high ground that must be mapped, monitored and managed. IT leaders need to step up to this important undertaking. ♦


Futurist Thornton A.

May is a speaker, educator and adviser and the author of *The New Know: Innovation Powered by Analytics*. You can visit his website at [www.thorntonamay.com](http://www.thorntonamay.com) and contact him at [thornton@thorntonamay.com](mailto:thornton@thorntonamay.com).





# SURVIVING VENDOR SHAKEUP



Big changes in the vendor landscape are creating unexpected fringe benefits for users. Here's how to seize the opportunities.

BY CINDY WAXER

**A**FTER YEARS of fighting tooth and nail with vendors for meager price discounts or modest service-level agreements, IT has seen the tables start to turn: Sweeping changes are reshaping the vendor landscape, shifting negotiating power from stingy service providers to savvy CIOs.

## COVER STORY

At the center of this sea change are trends such as cloud computing, social media, data analytics, remote monitoring, automation and mobility. Whether it's manufacturers opening sensor-operated plants or healthcare providers using remote patient-monitoring systems, organizations are acting fast to seize new opportunities and satisfy customer demands. And as the need for agility increases, cloud-based computing is booming: Infrastructure as a service and business process as a service are the two fastest-growing segments of the IT services market, expanding 44.9% and 12.4%, respectively, in 2014, according to Gartner.

Just ask William Graff, senior vice president at Cerner Technology Services. "We're spending a lot of time with specific internal business units looking at cloud solutions that traditionally we would have hosted on our own data center. But because of business pressures to move rapidly, we've selected a handful of cloud providers over the last year," he says.

Decisions like that at companies of all kinds are adding an infusion of new, agile cloud providers into the average company's mix of more traditional vendors.

Combined with the need for speed is an increased awareness of high-tech products and services. "The buyer's paradigm has changed dramatically over the last several years," says Keith Lubner, CEO and a managing partner at Channel Consulting, a Philadelphia-based management consulting firm specializing in vendor relations. "Access to information and content is so dramatic that buyers are more astute than ever before. They have instant access to information on every single product out there — they've flipped the whole sales cycle on its head."

Armed with information and eager to take advantage of fast-acting cloud, analytics and mobile technologies, CIOs are voting with their wallets: A staggering two-thirds of respondents to a recent Gartner CIO survey said they expect to change primary suppliers by 2017.

Desperate to stay on top, traditional IT vendors are responding by tossing out their typical IT sales models to offer flexible subscription services, shorter sales cycles, unprecedented product innovation and personalized service. And that's creating a once-in-a-career opportunity for savvy CIOs: a chance to negotiate huge price cuts, packaged deals, favorable contracts and unique partnerships with big-time vendors once too busy to return calls.

## A SURVIVAL GUIDE

Once you sort through the chaos, it's easier than you think to take advantage of the changing nature of the IT-vendor dynamics. Here's what you can do:

■ **If a vendor won't budge on price**, ask to have additional products or services thrown in for a more cost-effective package deal.

■ **If you're working with a new vendor**, test the waters by taking advantage of a monthly subscription service.

■ **Always ask a vendor** what migration path it has in place for your business in case it's involved in a merger or acquisition.

■ **Create a five-year plan** that limits a vendor's ability to raise its prices.

■ **Request a single point of contact** for all customer service.

■ **Investigate any legal liabilities** that might arise from using a certain product, such as questions regarding intellectual property rights.

■ **Hire a third-party consultant** to provide industry benchmarks on fair market prices for products and services.

■ **When hammering out cloud deals**, be sure the terms of service-level agreements cover specifics such as network uptime.

CINDY WAXER

## Tough Customers

Jim Forbes is a perfect example of the type of technology executive that's keeping vendors up at night. The CTO at University Health Network (UHN) in Toronto, Forbes had for years relied on standard criteria such as "functional requirements and server compatibility" to select technology solutions. But a desire for a more scalable cloud-based tool recently convinced him that it was time to switch IT management vendors.

"Our new thinking sent us in a very different direction," says Forbes. "We ended up going with an entirely different vendor — one who really wasn't on our radar. There was some nervousness, but we recognized that this was the right strategic move, and looking back, it was a very good choice."

James Cole, CIO at First National Bank of Omaha, also has a set of purchasing priorities that could cause vendors to panic. Once susceptible to industry buzz and product hype, Cole says he now finds himself taking a more business-oriented approach to vendor selection by asking, "Where does a solution fit into my organization?"

Today, IT staffers meet with the retail bank's business-line leaders five days a week "to understand what their needs are and bring IT solutions to them," Cole says. "We're becoming more in tune with our core business, helping our business-line leaders with their needs and then going out into the market and determining who best can solve that need."

But shifting the focus from acquiring tech tools to discovering business solutions is also changing the nature of the CIO-vendor relationship — to the CIO's advantage. Increasingly, vendors are being asked to be a partner rather than simply a provider.

Cole points to the First National Bank of Omaha's four-year relationship with Client Resources Inc. (CRI), an IT talent and solutions provider. Once considered a supplier of temporary labor, the midsize vendor has evolved into a key collaborator with the bank's IT department, Cole says. For example, CRI recently worked hand in hand

with the bank to design and develop a mobile app. "It became this great partnership," says Cole. "If you were in a room with us, you'd have a hard time knowing who was the First National employee and who was with CRI."

Even tech vendor titans are shedding their hands-off reputation for a hand-holding approach that they hope will help them





# Outstanding Java Performance<sup>1</sup>

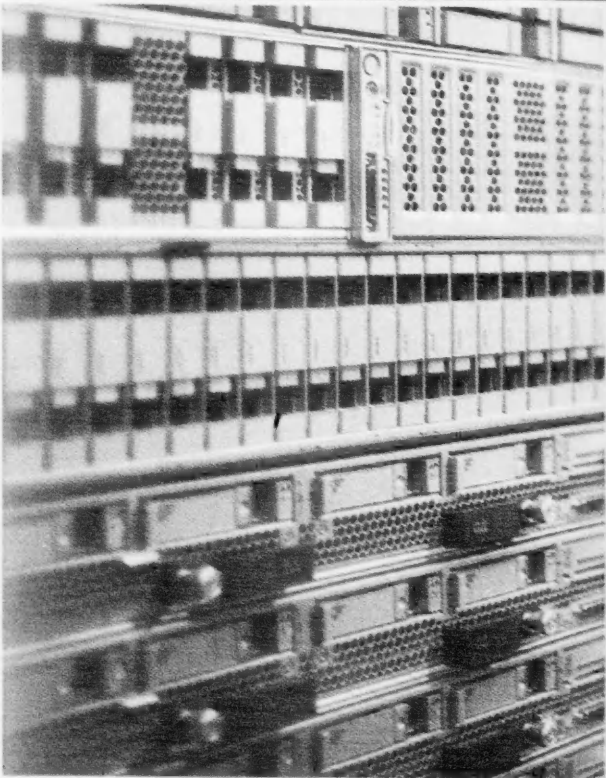


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1. Cisco UCS C240 M3 server SPECintbase2000 Multi-JVM score of 82,393 max-JOPS, 23,505 critical-JOPS, based on 2-socket X86-based results published on [www.spec.org](http://www.spec.org) as of 1/1/2014. SPEC<sup>®</sup> and SPECint<sup>®</sup> are registered trademarks of Standard Performance Evaluation Corporation. 2. Based on TPC Benchmark C Results on 2-Processor Systems as of 1/1/2014. Cisco UCS C240 M3 High-Density Rack Server with Oracle Database 11g Release 2 Standard Edition One, 1,808,186.39 JOPS, 50.42 JOPS, available 9/27/12 compared to IBM Power 750 Server Model 9179-MMS with IBM DB2 9.5, 1,208,011.00 JOPS, 50.68 JOPS, available 10/13/10. TPC Benchmark C<sup>®</sup> is a trademark of the Transaction Processing Council (TPC). The performance results described here are derived from detailed benchmark results available at <http://www.spec.org> and <http://www.tpc.org> as of 1-15-2013. 3. Based on Cisco UCS R200 M3 B1 score of 1,217,638 employees per hour on the Oracle E-Business Suite R12 (12.1.3) Extra-Large Model Payroll Benchmark as of 1/1/2014. Full benchmark report available at <http://www.oracle.com/us/solutions/benchmark/aps-benchmark-results-166922.html>. ©2014 Cisco and/or its affiliates. All rights reserved. All third-party products belong to the companies that own them. Cisco, the Cisco logo, and Cisco UCS are trademarks or registered trademarks of Cisco and/or the Intel logo, Xeon and Xeon Inside are trademarks or registered trademarks of Intel Corporation in the U.S. and/or other countries. All other trademarks are the property of their respective owners.

## COVER STORY

retain customers. Seven years ago, Cole says, the bank's dealings with Oracle could have been described as "a catalog relationship" involving occasional database orders. Today, a senior executive from Oracle is dedicated to helping First National Bank of Omaha with some seemingly minor IT projects, such as developing a better login process for mobile employees. "It's very much a collaboration," says Cole. "Oracle is looking at their business model differently now and seeing customers as a relationship rather than a product sale. It's just interesting that Oracle is listening to us."

### Power Shift

In fact, whereas power-wielding IT vendors once shaped CIOs' buying behavior, CIOs are now having a profound impact on the way a vendor approaches everything from customer service to product development. Says Graff: "When we enter into a long-term agreement with a vendor, we expect that our voice as an end-user community will be heard and that we'll influence changes and enhancements to a product."

But as CIOs and vendors increasingly become bedfellows, the IT world is drafting its own version of a prenup. For instance, when UHN began vetting vendors for a new managed service contract, Forbes insisted that each interested party develop a five-year plan illustrating how unit costs might change over

**A staggering two-thirds of respondents to a recent Gartner CIO survey said they expect to change primary suppliers by 2017.**

time. Vendors that promised cost-per-unit decreases earned extra points.

Another way Forbes gained an upper hand in negotiations was paying research firms, including Gartner and PricewaterhouseCoopers, for market analysis on IT service prices such as help desk costs and server fees — industry benchmarks that provided "a viable opportunity to negotiate cost reductions right upfront before signing a contract," he says. "We're doing more strategic thinking as part of the RFP process as opposed to just writing an RFP and throwing it out onto the street."

Such an informed approach to negotiating pays dividends, according to Cole, who says he once talked an IT vendor into reducing the price of a system by \$3 million. "We build performance milestones into all of our contracts," he says. "We also do a very good job of negotiating [financial] holdbacks so that we don't feel like we're paying for a service well before it's delivered."

Faced with dwindling bargaining power and better-educated customers, many vendors are sweetening the pot by offering cost-effective bundles of services. For example, a vendor specializing in email encryption technology might try to package its tool with an Exchange server and high-margin services such as consulting on compliance issues.

In fact, Lubner says peddling packages is "the only way for vendors to differentiate themselves and provide more value to the buyer" these days.

# THE RISE OF STARTUPS

How to manage your relationship with the Davids of the IT world

**WHEN IT CAME TIME to select a new human resources management system, William Graff, senior vice president**

**at Cerner Technology Services, had his pick of offerings from deep-pocketed, well-established vendors.** Yet Cerner opted for a tool from a little-known startup. "The functionality was richer, the pricing model was more in line with the value we were expecting, and they were more willing to negotiate a better price," says Graff.

Welcome to the world of hot tech startups. Although high-tech businesses represented just 4.1% of all private-sector companies in 2011, high-tech ventures — and the entrepreneurs behind them — are economic powerhouses, serving as key contributors to income genera-

tion, job creation and productivity growth," says a report from the Kauffman Foundation, an entrepreneurship advocacy organization.

University Health Network is another organization that's placing its bets on promising upstarts. "We have chosen to work with small startups, and I think we're going to see more of that," says Jim Forbes, UHN's CTO. "There are a lot of interesting smaller companies that are producing innovative products."

But choosing David over Goliath as an IT vendor requires weighing the risks — a startup could run out of money, suffer from poor management, be purchased by a bigger company or go out of business — against perks such as scrappy entrepreneurship, innovative products and potential for cost savings.

For James Levine, the decision to select business intelligence and analytics tools from New

York-based startup SiSense over those of a larger vendor came down to deployment time.

"When we started looking for business intelligence solutions, the ability to scale was important, cost was important, but most important was the implementation time — how quickly we could get the solution set up and with very minimal IT involvement," says Levine, a senior analyst at Act-On, a Beaverton, Ore.-based provider of marketing automation tools. "A single business analyst can implement SiSense, whereas with some of the larger tools, we had an entire team dedicated to the back end."

Another advantage of working with a startup is quality of service. "Startups have to earn your business and continue to earn your business," says Levine. "So they'll go above and beyond and out of their way to make sure that we're successful and happy."

Jerry Jao, founder of a 20-person marketing software provider called Retention Science, agrees. "Smaller companies are more attentive, and we're willing to spend the time to try to understand the client's business," he says. "Even as CEO, I might be intimately involved in your business, whether it's a contract negotia-



Forbes agrees. Just as the federal government has been slowly embracing a shared services strategy, he says, the healthcare industry is inching toward a similar model, where multiple hospitals, clinics and laboratories will agree to share the funding and resourcing of key IT services to cut costs and improve efficiency. "There's a lot of opportunity to save money and reinvest the subsequent savings back into healthcare if we only shared some of these IT services," says Forbes, adding that the vendors that are most likely to come out ahead are those that "recognize the market is shifting and respond by packaging their software."

## Sharing the Legal Load

But greater collaboration, bundled IT services and high performance standards aren't the only changes in the IT landscape helping to create a buyer's market. Organizations are demanding that even legal issues be treated as shared responsibilities rather than matters to be hashed out by bloated legal departments. After all, says Cole, "if you just have two sets of legal teams talking, you'll reach an impasse very quickly."

Cole should know. In the first four months of this year alone, he's had to tackle questions of intellectual property with at least three different vendors. That's because, in these litigious times, it's becoming increasingly common for unwitting end users to wind up entangled in patent infringement suits. For example, a hotel chain that offers its guests free Wi-Fi might find itself involved in a patent suit simply because it relies on server technology that has come under legal fire.

However, whereas in the past vendors would simply scoff at the

notion of shared liability, Cole says there's more willingness now to address issues such as intellectual property as a mutual business challenge rather than as a legal technicality.

"We need to have protection so now it's a negotiation to determine how much liability a vendor is willing to give up and how much risk am I willing to accept," says Cole. "It's become a business discussion, not a legal discussion. In fact, it's a very common conversation in the IT community today."

That's not to suggest, however, that vendors are simply rolling over and letting customers call all the shots. For example, Graff points out that Kansas City, Mo.-based Cerner is both a buyer and a provider of IT services and says that, no matter how profitable a project might seem, the company will "never sign a deal [as a provider] where we can't deliver on what we've written into the contract."

But that's not all. Cole says most organizations do recognize and respect a vendor's need to turn a profit. "Recently we negotiated a deal where it came down to both sides saying, 'Here's what I'm willing to give you in terms of profit and here's where I need to be in terms of expenses,'" he recalls. "That's a partnership where we shook hands. But had we dug in our heels and said, 'Here's all I'm going to give you,' we both would have left with a bad taste in our mouth."

After all, there's no telling when the pendulum will swing back to a seller's market. All the more reason, says Graff, for savvy CIOs to make sure "it's a win-win situation for both parties." ♦

**Waxer** is a Toronto-based freelance journalist. She has written articles for various publications and news sites, including *The Economist*, *MIT Technology Review* and *CNNMoney.com*.

tion, an implementation, dealing with day-to-day operations or making sure that client campaigns are successful. I'm on the ground running and working with our clients."

But companies that turn to startups simply to cut costs are missing the point. Although Levine has successfully "negotiated significant reductions in price" with smaller vendors, the real advantage is being able to determine a product or service's actual value — as opposed to its price — before signing a contract.

"With startup companies like SISense, we're able to test our environment before we even pay a dime so that we can see the ROI before we write the check," says Levine. That's a far cry, he says, from larger vendors that often refuse to "open the curtain all the way" and don't offer product demos.

But even the most impressive startups come with limitations. For example, Levine says he's reluctant to sign multiyear contracts with newer vendors for fear they'll be gobbled up by a competitor or will shut down unexpectedly.

Jao says he understands that reluctance. "Clients prefer not to sign long-term contracts, especially with a startup," he says, adding that

**Startups have to earn your business and continue to earn your business. So they'll go above and beyond and out of their way to make sure that we're successful and happy.**

JAMES LEVINE,  
SENIOR ANALYST, ACT-ON

many buyers "want the freedom to be able to try other solutions down the road."

Fortunately, there are ways to minimize the risks of doing business with a startup IT vendor. Jao advises IT leaders to make sure that vendors have "proper liability insurance" and that "they're properly funded."

In fact, Forbes says, "we always make the financial standing of the company a criteria" for selection. And that sometimes requires asking a startup to supply financial records. "Some products out there, especially around cloud, we're very wary about," he says. "We do our homework and make sure we understand the legal terms of what they're expecting and selling."

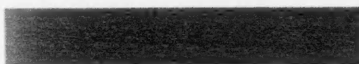
Cherry-picking which IT tools should and should not be provided by a startup can also safeguard a company against unexpected snafus. For example, a retail bank may decide to have its social media monitoring handled by a Silicon Valley newbie while leaving its data storage in the safe hands of a tech titan. Either way, startups are fast gaining ground as a viable alternative to high-priced established vendors.

— CINDY WAXER





# Quick Hits *(in the)* CLOUD



**W**ADE SENDALL, vice president of IT at *The Boston Globe*, had to build an application that would allow both employees and customers to add their photos to advertisements.

The new app was slated to replace a service costing \$80,000 annually, so the potential ROI was significant, he says.

Yet even with such a clear financial gain in sight, Sendall didn't assign a team to develop the new app from scratch. Instead, he needed just one developer to do the job.

**With existing frameworks in the cloud,** app developers can now quickly revise software, allowing for fast response to business needs. **BY MARY K. PRATT**

And that single developer delivered big-time, taking only a month to build an app that had the same functionality and workflow as the prior service, a software solution that the vendor no longer offers.

Sendall credits a new development strategy for the success. His developers now build apps in a cloud environment using the Mendix App Platform. This service, and similar ones from competitors such as CloudForge and MIOsoft, essentially replicates corporate app development tools and frameworks, including business rules and models, as a cloud service.

Since adopting this approach in December 2013, Sendall's team has built three apps, two of which were live by May 1. "It's a huge difference. With the cloud [development environment], you spin up very quickly," he says.

Sendall estimates that those projects would have required more staff and more time to complete — months more time — if the development had taken place in a traditional on-premises environment. In fact, he says he doubts that the projects would have happened at all because he wouldn't have had the manpower to dedicate to them.

There's no question that enterprise use of cloud computing in general is on the rise. And now a small but growing number of IT departments are also moving their development work to the cloud. In Evans Data Corp.'s November 2013 North American Development Survey, 28.2% of the programmers surveyed said they are developing in the cloud, up from just 8.7% in 2009. Moreover, another 22.6% said they planned to start using the cloud as a development environment in the next 12 months.

Enterprise IT leaders and IT management consultants cite several benefits to making the move. In the cloud, they say, developers can respond more quickly to requests to build new applications or upgrade existing ones, and they can take on the projects with fewer people, disruptions and costs.

"You can do more with less," says Curt Jacobsen, a director who focuses on technology consulting in the U.S. advisory practice of PricewaterhouseCoopers. "You don't have the overhead of a lot of administrative people. And you're not worried about networking and load-balancing because you don't have to think about that. Developers who move to a cloud environment spend less time researching and waiting for infrastructure tests to complete and more time focusing on business value."

### **Slimmed Down and Speedy**

Many of the benefits commonly associated with cloud computing are also found with app development in a cloud environment. Proponents say it eliminates the cost of hardware, as well as the manpower required for the hardware's upkeep.

The cloud also enables collaboration across multiple sites and allows for virtualization of resources, because multiple developers can work on the same project at the same time from various sites. And because most IT organizations opt to use commercial cloud-based development platforms, they gain more consistency in source documentation and workflows. Moreover, with development environments in the cloud, organizations can quickly provision and spin up the infrastructure they need.

"It's very elastic, so the application developers have more time to work on what they do best," says Rick Carbonaro, managing partner at the IT advisory firm TPS and communications chairman for the Washington, D.C., chapter of the Society for Information Management.

Luc Fournier, an analyst and technology adviser at Berger Ltd.,



**Developers who move to a cloud environment spend less time researching and waiting for infrastructure tests to complete and more time focusing on business value.**

**CURT JACOBSEN, DIRECTOR,  
U.S. ADVISORY PRACTICE, PWC**

a soil supply company in Riviere-du-Loup, Quebec, says his company's IT department is using the Appery.io platform to move its app development work into the cloud and meet a tight deadline.

He says his team has three months to develop, test and deploy a mobile app designed to help the company's sales representatives manage their everyday tasks. "We needed to be productive as soon as possible and that was the shortest learning curve we could get," says Fournier. "With the infrastructure already in place, no software to set up and a good support team to ask questions, the only thing we had to validate was that we could integrate our data via [an application programming interface]."

Fournier says the development costs were lower than in a traditional process, and although the app has yet to be deployed, he hasn't identified any risks associated with using a cloud environment.

He did, however, list some potential drawbacks to consider.

**It's very elastic, so the application developers have more time to work on what they do best.**

**RICK CARBONARO,**  
MANAGING PARTNER, TPS



### A Few Hitches

Other IT leaders, however, say there are some valid concerns to think about before moving development to a cloud environment. Some say they worry about their ability to comply with regulatory mandates and fulfill their obligations related to privacy and security when data is in cloud environments outside of their control.

And some IT shops, including those with lots of older on-premises applications, face significant barriers, Jacobsen says. Using a cloud environment to develop updates or add new functions for these older applications, or maintaining two distinct app development environments, can be complicated.

IT departments that have invested in data centers and development tools customized to their business needs might also resist a move to cloud-based app development.

"People aren't eager to walk away from those," Jacobsen says, but adds that all CIOs should realize that their developers are likely experimenting with work in the cloud even if it's not officially sanctioned.

Duncan DeVore, vice president of software engineering at Viridity Energy, a Philadelphia company that helps organizations manage their energy assets, is a cloud proponent. He moved his company's application development work to the cloud in mid-2013 using a platform from CloudBees.

"You can deploy an entire environment — that we used to do manually — in a matter of seconds versus a couple of hours," he says.

DeVore says the traditional development environment was costly for the six-year-old company because it required an investment in hardware and manual maintenance and deployment of the development-and-test infrastructure. That maintenance also

"One disadvantage is that you'll always need an Internet connection to work with a hosted cloud development tool in your browser as opposed to a traditional IDE [integrated development environment]," he says, noting that "at first it's scary to not have total 'local' control of your work at all times. After three months, I still do a lot of backup of my project to keep my mind at peace."

But he says that's a small concern in light of the benefits of cloud-based development, which include a faster pace of development, real-time collaboration and the absence of infrastructure — which means there's nothing to maintain.

"The way I see it, the benefits of using a cloud development tool outweigh by far the disadvantages and getting across the small learning curve," Fournier says, adding that the cloud offers "a great return on investment of your time and money."

wasted time, because developers had to shift from their primary jobs to focus on tasks like provisioning and networking.

A shift to the cloud for development work pays off with a more efficient, quicker and cheaper process, says DeVore, noting that one Viridity developer who was nearly always working on nondevelopment tasks was freed from those and able to return to just writing code.

Noting that the improvements have allowed his team to respond faster, and more often, to user requests for new features and functionalities, DeVore says, "It now allows our developers to focus on what they're paid to do, which is to design and solve business problems." ♦

**Pratt** is a Computerworld contributing writer in Waltham, Mass. Contact her at [marykpratt@verizon.net](mailto:marykpratt@verizon.net).

## Assemble to ORDER

PwC technology consultant Curt Jacobsen says a big advantage of cloud-based

development environments is that they foster the use of the assemble-to-order approach by enterprise IT development teams.

Jacobsen describes the approach as, "I'm going to build this thing, and I assume I'm going to use it in more than one place," rather than building from scratch again and again. That mindset, he says, reduces risk and speeds delivery.

Although it's not a new concept, Jacobsen says organizations are better able to move in that direction when they're using cloud-based platforms for development.

"Cloud-based application development makes assemble-to-order much easier because of the struggle factor," Jacobsen says. "In traditional environments, administrators will typically leave out modules or libraries in packaged software, and it's a struggle to get them set up, sometimes taking months to get into development environments."

"In some cases, it's just easier for engineers to write the off-the-shelf component from scratch. Cloud platforms remove the setup hurdle so engineers can use standardized components much more easily, and since cloud platforms have a robust set of ready-made components, engineers are much more likely to assemble them."

Wade Sendall, vice president of IT at *The Boston Globe*, says his developers have long reused code that works well and is available for recycling.

"Most developers simply know to do this, and yes, we also encourage code reuse," he says. "The benefits are obvious. Time to market is faster. If the proper vetting of the code has been done and it works as it should, we don't see a downside."

Sendall says reuse is something that can easily happen whether development work occurs in the cloud or on-site. However, the cloud-based platforms do create easy access. He says platform-as-a-service provider Mendix, for example, has a repository from which his team took existing code that allows users of a photo app to rotate imported pictures.

— MARY K. PRATT



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# AMBITIOUS IT Pros *Seek COO Role*

To effect truly strategic and visionary change, motivated tech leaders are looking at operations rather than IT. **BY BETH STACKPOLE**

**YNTHIA HAMBURGER** spent years climbing the corporate IT ladder, including a stint as a CIO at Dun & Bradstreet. Yet when she was offered the CIO post at another organization, Learning Ally, she politely declined.

It wasn't Learning Ally's nonprofit business model or smaller stature that was the turnoff, and she clearly spied opportunity for technology-driven change

at the nonprofit, which provides audiobooks and services for people with learning disabilities.

The problem, as Hamburger saw it, was that the CIO role was too narrow to drive the scope of what she felt needed to be accomplished. It was only when Learning Ally agreed to create a combined CIO/COO post that Hamburger was game to get on board.

"When I was first offered the position as CIO, I had no interest," says Hamburger, who stepped into her dual role in April 2013. "When they started to add in the operational side ... it became much more interesting. This was a 65-year-old company in need of a technical reinvention. I had to have [responsibility] for enough of the business that I could control my destiny and really start the transformation process."

With technology now the cornerstone of most companies' operations, there is a growing cross-industry push to connect the oversight of IT with operations. In some cases, like at Learning Ally, the answer is a blended CIO/COO position. At other companies, the CIO is now reporting to the COO or a hands-on CEO instead of the CFO, which had been the prevalent organizational structure in recent years due to the focus on cost-cutting.

The 2013 IT Trends Survey conducted by the Society for Information Management confirms that there has been some movement with regard to where the CIO fits in the executive management suite. The study of 650 senior IT leaders found that 44.7% of CIOs now report directly to the CEO (an increase from prior years), while 14.4% answer to the COO and 27.1% are under the jurisdiction of the CFO (a decrease from years past).

While the actual reporting structure will vary according to a company's business goals, culture and executive skill sets, the common theme to the reshuffling of the management deck is to break down organizational silos and other barriers preventing technology from driving innovation and delivering a competitive edge.

"IT and business operations have converged in the enterprise to the point where you can't have one without the other," says Cory Chaplin, director of technology solutions at West Monroe Partners, a Seattle-based management and technology consulting firm. "It used to be that IT was a support function, making sure people had phones and computers. Now IT is in charge of everything from e-commerce applications to mobility. Since those things are the business ... it makes sense to have more overlapping roles."

## The Case for CIO-COO Alignment

Having a closer CIO-COO connection, whether in the form of a new reporting structure or a combined role, makes particular sense in a couple of scenarios. Companies with a strategic mandate to achieve operational efficiencies or those divesting assets as a result of a merger or acquisition stand to gain signifi-

cantly from tighter alignment between these two roles, says Tim Stanley, a former CIO and COO and now president of Tekexecs, an executive advisory and consulting company.

Companies that have made significant operational investments in technology and have heavy lifting to do in the areas of IT deployment and change management would also be well served by fostering a tighter relationship between the two posts and their respective organizations, which historically have been run separately, Stanley adds.

"The COO is often a ringleader and the accountable party to pull stuff together across areas, and IT by definition is the connective tissue and an enabler for getting stuff done," he explains.

Richard Thomas, CIO at Quintiles, which helps drug and medical device companies through the process of clinical trials, says his direct reporting relationship with the COO was invaluable during a period of heavy transition back in the mid-2000s.

In addition to keeping up with the rapid-fire pace of change in the healthcare sector, Quintiles was in the process of becoming a global company, Thomas explains. That process involved undertaking a range of technology initiatives, including the deployment of clinical systems, the adoption of modern email and collaboration platforms, and an ERP upgrade to enable new global processes.

At the time, the Quintiles CEO and company founder played more of an external-facing role, according to Thomas. The COO was a natural candidate to oversee IT, since he had visibility across the organization and could control the pace at which things changed. "Working with the COO in such a tight partnership meant trade-off decisions could be made in real time and with complete clarity on what the future would look like," Thomas says.

## Trending: 'CIO-plus' Roles

In many cases, when IT and operations do converge, it's not a case of a traditional COO taking the reins of IT, but rather of an elite CIO stepping up to take on operational duties. That's part of a broader trend to award the senior IT person more responsibility — creating a role that some management consultants are calling "CIO-plus."

"The great CIOs are becoming more of an operator and view their role like a COO, thinking more broadly and recognizing their strategic perch in the corporate structure," says Peter High, president of Metis Strategy, a boutique strategy and management consulting firm based in Chevy Chase, Md. "They are more likely to have an intimate understanding of other areas like human resources and the supply chain that arguably no other leader has, so it's logical for them to take that next step to COO."

A CIO-plus role has always been a goal for Duane Anderson. Now CIO/COO at marketing agency Marquette Group, Anderson has had several key mentors, including Tekexecs' Stanley, who

**When I was first offered the CIO position, I had no interest. When they started to add in the operational side ... it became much more interesting.**

CYNTHIA HAMBURGER,  
CIO/COO, LEARNING ALLY





## IT CAREERS

blazed the trail for a broader CIO role when the pair were at Harrah's Entertainment, now Caesars. "It was part of the proving ground when I came up," Anderson says. "I didn't know that it wasn't normal."

Given that IT has become so strategic to what most companies do, Anderson says it's imperative for the CIO to report to a visionary leader like the COO or CEO, not the CFO, who tends to become too focused on IT as a cost center. "For any technology initiative to be successful, it's not just about the technology being implemented, but also about the processes around it and the people who can deliver," he explains. "That coupling of CIO/COO — whether it's a dual role or a direct report — helps unlock the three ingredients of people, process and technology."

When Anderson started at Peoria, Ill.-based Marquette in June 2009, he came on board as the CIO; there was no formal COO position. After a couple of years, he was recognized for driving a lot of the firm's product direction and for identifying the business requirements that were influencing where Marquette should be headed, he says. The carrot, he adds, was an offer to become the firm's first-ever COO.

The benefits of having core IT, operations, and the development and infrastructure units report to a single person have been significant, according to Anderson. "We now have much more streamlined requirements between operations and IT, and a much closer melding of the groups now that they are under one purview," he says. "While there are still lines of demarcation, it's much grayer — it's no longer that there's a business customer over here and the IT group over there."

For years, the goal of top CIOs has been to understand and get closer to the business, but what's different with these new reporting scenarios is that there is actual authority to get things done, adds Chaplin. "While a CIO may understand the business side, those business folks don't report to him and he can't control how often they meet with him or what training they get," he explains. "If he's in charge, he can mandate expectations of the team and have authority over them that was previously lacking."

Having the power to make decisions across the business is what Hamburger knew was essential to achieving Learning Ally's aggressive goals. Given the cost pressures and the demand to move quickly, she says there was no room for the usual roadblocks — such as traditional layers of leadership — impeding IT deployments.

"We don't have the time to think about business requirements and then translate them into IT requirements and then start programming with a waterfall approach to building systems," she explains. "We needed a more iterative 'test, learn and change' environment. And to move that fast, we couldn't have all those handoffs in the organization."

Hamburger is using a similar approach to building her team. "I don't run a technical or operations team anymore — I run a combined team," she says. "We're not just combining things at

the C-level; we're integrating operations and technology at the next level because it makes for a more efficient organization."

### Unique Skill Set Required

While there are synergies between the CIO's and COO's skill sets — a proven ability to communicate with others, a deep knowledge of the business and strong leadership skills — not every CIO has what it takes to be tapped for a role in operations oversight. While CIOs typically have a keen understanding of metrics and key performance indicators, a COO needs knowledge of how the business is performing and what levers to pull in order to drive the necessary outcomes, says Stanley.

Past experience with profit and loss (P&L) responsibilities,

an understanding of value creation across the business, and a knack for earning the confidence of fellow denizens of the C-suite are other characteristics that will help a CIO move confidently into COO territory.

"A good CIO receives strategy from other members of the C-suite or division heads and recognizes the IT components articulated in those plans," says High. "The really great CIO-plus recognizes that there are themes emerging across the different strategies and, from that strategic perch within the organization, starts to tie things together across divisions."

Then there are some tried-and-true IT habits that will have to fall by the wayside, says Stanley. For one thing, "you have to purposely forget to be a techie CIO," he explains. "And you have to have an intellectual curiosity about things that traditional CIOs find a little ephemeral or distasteful" — like brand marketing, for example.

Barry Carter says it was his ability to recognize and articulate ways to address operational issues in the language of the business that ultimately won him the CIO/COO spot at EFG, an Irving, Texas-based developer of consumer protection strategies for businesses. Carter, who came in as CIO reporting to the CEO in 2012, had had P&L responsibility at a previous post as well as operations experience, which primed him for taking on comparable responsibilities at EFG.

"As CIO, you get to see the business from end to end," he says. "As you automate processes, you start to see the macro picture

on how to influence the business, and pretty soon you get really good at knowing what's needed to run operations."

Under his direction, EFG resolved some major problems surrounding how it fulfilled its service levels and met its financial targets. That work earned Carter the COO post after less than a year at the company.

In the end, he says it's not really about the title, but about the influence. "We're seeing a blurring of titles and accountability," Carter says. "The person that delivers the most value for the company is the one getting the more senior spot." ♦

**Stackpole**, a frequent Computerworld contributor, has reported on business and technology for more than 20 years.

### That coupling of CIO/COO ... helps unlock the three ingredients of people, process and technology.

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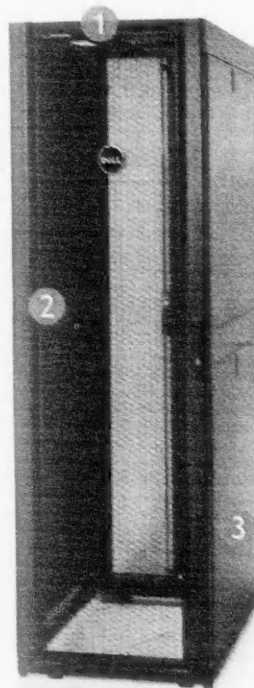
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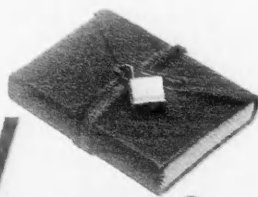
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# Security Manager's Journal

MATHIAS THURMAN



## Locking Down the Network

Our manager decides that, like users, resources on the network should adhere to the rule of least privilege.

**T**HE RESOURCES on our network have been given too much access to the Internet, and we need to curb that.

One of my primary security philosophies is the rule of least privilege, which can be defined as the practice of granting only the minimum amount of access necessary to get work done. Typically, the rule is met by defining role-based access to applications or data, but I extend this philosophy to all areas of business. This week, I prepared to apply the rule to resources on our network.

Consider production Web servers. They serve up Web pages to the public, so you would expect them to accept requests from the Internet. But what access is needed in the other direction? Should an administrator conducting maintenance on the server be able to use it to access his Yahoo email, Facebook or (shudder) Dropbox? In fact, except for a very small portion pertaining to business-related activity, the vast majority of the Internet should be unavailable from that Web server.

I decided to have my security engineers work with the network team to

explore this issue and start to prioritize the work we would need to do. I had them focus on four areas.

The first is the production server network, which includes our DMZ, production and test (preproduction) networks. When you get right down to it, those servers need very little access to the Internet. And many security breaches are successful because a server was able to initiate a connection to a command-and-control server or some other malicious location on the Internet.

Our firewalls currently allow virtually any traffic originating from the production network to the Internet. That has to be curtailed.

The next area is our R&D network. Servers on that network also have little reason to initiate a connection to the Internet, but the engineers who work in R&D need to innovate, so I'm willing to be a bit more flexible. Those same engineers, however, constantly complain that patching and antivirus software cause performance to deteriorate, and they refuse to comply with our requirements. Because of this, we isolate the R&D network from the rest of our network.

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## Trouble Ticket

» **At issue:** Servers and other resources on the network have unhindered access to the Internet.

» **Action plan:** Assemble a team to assess the situation and make recommendations.

The third area is our corporate network, or what some call the PC network, since it's reserved for all our PCs. We can't completely lock it down, since we give a good deal of latitude to employees when it comes to accessing the Internet. Nonetheless, we can put some things out of bounds, and so we reviewed our firewalls' ability to block certain categories of websites and applications that could lead to problems for legal, HR or security. We already block pornography, malware and spyware sites. We will be adding phishing sites, anonymizers (which employees use to bypass our filtering), peer-to-peer sites, remote control services (such as LogMeIn), parked domains (Internet domains with no services) and personal file storage.

Finally, there's our critical zone, the area of the production network that contains our most critical resources. Currently, we allow all corporate traffic to this area of our network, when in reality, employees mostly need merely to have Web access. Now that we've incorporated user identity into our firewalls, we can create rules based on who you are and restrict administrative access to our critical resources to those administrators who need it.

Simple, right? Just configure the firewalls and block traffic. Unfortunately, in order to implement all of the changes I've mentioned, we have to conduct a business impact analysis, since we can't afford to make changes that affect our ability to deliver products or services. Therefore, the next course of action is to study the current network traffic to understand any valid business requirements before executing the plan. ♦

This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at [mathias\\_thurman@yahoo.com](mailto:mathias_thurman@yahoo.com).

**The rule of least privilege is the practice of granting only the minimum amount of access necessary.**



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**CABLESYS**



OPINION

PAUL GLEN

## A Critical Career Question You've Never Considered

Asset or liability? That question is so basic that it never gets asked.

**A**S A REFLECTIVE PRACTITIONER of the technical arts, you've likely pondered a lot of questions about the career you want to pursue, including these: *What technical discipline should I focus on? Which degrees or certifications should I get? Should I stay technical or become a manager?*

But here's one question so fundamental that it rarely gets asked.

*Do I want to be an asset or a liability?*

You're probably wondering whether you should take me seriously. No one wants to be a liability, right? But I see this as one of the most important career questions you can consider. Let me explain.

Over the course of the past couple of years, while working on a book for early-to-mid-career IT professionals, I've had a lot of opportunities to think about the future of organizations, what's in store for enterprise IT groups, and how the lives of the technical people who will populate those IT groups are going to change.

One thing that seems clear is that over the past 30 years, a radical transformation of labor markets has taken place around the world. Some observers are predicting that by 2020, just six years from now, half the people in the U.S. workforce will be contractors — temporary workers outside of the traditional definition of "employee."

Economists, sociologists and management theorists will likely argue for 100 years over the "true" reasons for this fundamental overhaul. Personally, I have a relatively simple take: Organizations, and their leaders, have been forced by a historic confluence of economic, technological, financial, legal, managerial and cultural forces to take a definitive position on a very basic question: "Are employees assets or liabilities?" Their answer ultimately determines whether an organization enters into long-term, mutually committed relationships with the people

who work for it, or instead negotiates contracts with suppliers of labor. Organizations that focus on engaging long-term employees have decided that the asset nature of people outweighs the liability of the obligations that come with the relationship. Those that emphasize service transactions have determined that the cost of the liability exceeds the value of the asset.

In an economy that's headed toward an even division between those two modes, you are left with this choice: asset or liability? Admittedly, you aren't going to think of it that way. Here's another way to phrase the question: Do you want to be a hot commodity or a treasured stalwart? Either way, the decisions that employers make about their workforces will determine how they see you and ultimately how you see yourself.

I'm not discussing the ethics of all this, which are ambiguous at best. (I've written columns on both the positives and the negatives for individuals.) As I said, external forces have contributed. In the end, some organizations will invest in human assets, nurturing them as a way to increase returns, and some will enter into agreements for services because they see a better return that way. Both are valid exchanges of effort for remuneration.

The question for you personally is what type of relationship do you want to be in?

There's no right answer. Both have costs and benefits. But your choice will to a large degree dictate the answers to all those other critical questions that get so much more attention. ♦

Paul Glen is the co-author of *The Geek Leader's Handbook* and a principal of Leading Geeks, an education and consulting firm devoted to clarifying the murky world of human emotion for people who gravitate toward concrete thinking. You can contact him at [info@leadinggeeks.com](mailto:info@leadinggeeks.com).



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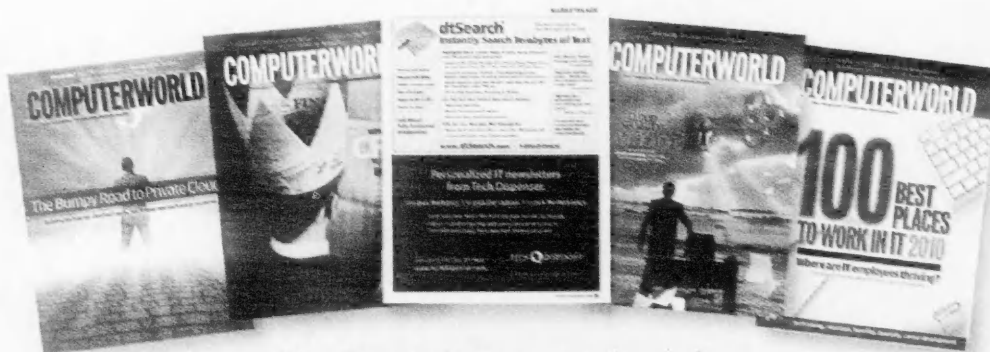
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# Career Watch



ASK A PREMIER 100 IT LEADER

**Doris Peek**

*The CIO at Broward Health answers questions on recovering from a failure and more.*

I was removed from leading a software project that had fallen well behind schedule. I am very organized and don't think I was at fault. The problem was really endlessly whining users and a project sponsor whose only interest seemed to be setting impossible deadlines. How can I restore my reputation? All successful professionals will experience failure in their careers. The first step is to own the failure. The second step is to learn from the failure. Delve into the root cause of the failure — and assume you were directly or

If you have a question for one of our Premier 100 IT Leaders, send it to [askaleader@computerworld.com](mailto:askaleader@computerworld.com), and watch for this column each month.

indirectly the cause of the mistakes, misjudgments or miscommunications that led to the project going off the rails. Have the courage and respect to ask the users and the sponsor how you can prevent a similar situation in the future. Growing from an opportunity like this is what is important. Apologize for falling behind, and assure them that your replacement will lead them to the finish line. At the end of the project, no one will remember that you were removed. And neither should you. Just remember what not to do again on your next assignment.

**My immediate manager has told me that too much education is a disadvantage in IT. He's all for training in specific technologies, which is great, but I actually like diving in deep the way you can with a degree program. I also want to set myself up for a career in management (maybe even CIO). Which approach is really better?** Wow! This guy is really in IT management? Perhaps not for long — the next new sheriff will likely change that. While certifications represent the ability to learn specific details about specific topics or technologies, a professional should never miss an opportunity to learn theory, concepts and frameworks and to read scholarly, peer-reviewed articles. A CIO in today's digital C-suite must be able to understand the technology (the specifics) at a very high level and be able to translate the benefits or impact of the technology to the business. Translation and change management of people and processes are the key attributes required for leadership. Communication at an executive level requires conceptual and framework dialogue — not dialogue about bits and bytes.

**As a brand-new business analyst with a background in IT, what should I concentrate on to ensure success?** First and foremost, learn the business. Walk in the shoes of your customers. Listen. Be a sponge. Then begin to analyze the data and the process to remove roadblocks for your customers. Use your technical background to solve the business problems you observed. Empower the customers to solve their problems through the power of technology.

## Getting the Bottom Line Into Your Résumé



We've all heard that our résumés should not just tell what we did but also give insight into how we helped our employers. But do you know how to do that? Sharon Florentine provides a great example in a CIO magazine article titled "Are You Too Old to Land a New IT Job?"

She says that career search expert and consultant Rick Gillis once had a client who was struggling to demonstrate his achievements while searching for a job. The job seek-

er thought it worth noting that he had written nearly 10,000 lines of code for a bank, but he couldn't point to a specific outcome.

Gillis had the client talk to his contact at the bank, who explained that the code was used to fix some security flaws in the bank's ATMs. The flaws were so serious that they required expensive service calls to address.

"It turns out, my client saved the bank more than half a million dollars a year," Gillis said.

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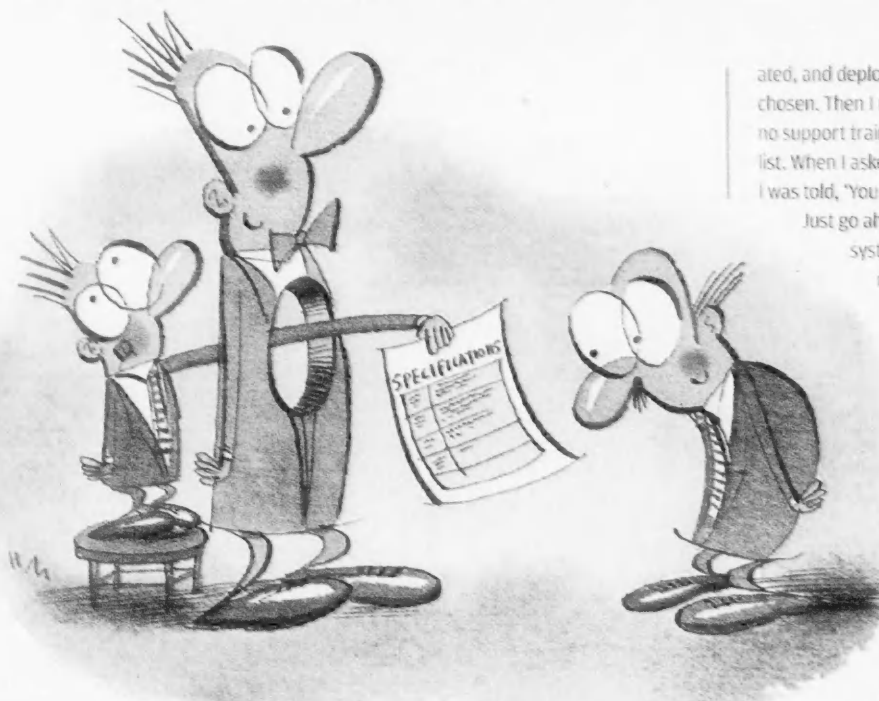
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#1615.8918 C++ or Java; Linux; process large amounts of data in a distrib environment, & web-based UI to facilitate human computation techniques.  
Technical Account Manager (New York, NY) Perform market research and analysis in connection with Google products. Exp. Incl: #1615.7107 C, C++, C#, or Java; OOP; client interaction, incl training; web technologies; script lang; Unix &/or Linux; SQL; network syst & troubleshooting; log analysis; schema design, report generation & data analysis by using query lang; user requirement collection, scalable solution, & identification of resources. Incl: triu req'd.  
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#1615.4846 Java, C++, &/or Python; distrib systs &/or algorithms; Linux &/or Unix; SQL; & unit testing frameworks.  
#1615.6252 algorithms & data structures; OO design; database systs & SQL; UI design & prototyping; Java; JScript & GWT & App Engine.  
#1615.4255 C++, Java, Python, or Go; distrib version control syst; scalability & distrib systs; perform optimization of prod syst; debug concurrent multithreaded syst; & Java core dev.  
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Software Engineer in Test (New York, NY) Design, develop, modify, and/or test software needed for various Google projects. Exp. Incl: #1615.3558 Java; Python; JavaScript; SQL; & functional programming.

# SHARKTANK

TRUE TALES OF IT LIFE AS TOLD TO SHARKY



HAL MARQUARDT

ated, and deployment dates were chosen. Then I noticed that there was no support training anywhere on the list. When I asked about my training, I was told, "You can get training later. Just go ahead and upgrade the system, and support the new system for a few months. That way you'll know what questions to ask when you go to the training."

## See? Layoffs Are Hard on Everyone

An employee is getting laid off, and this pilot fish has to disable the soon-to-be employee's accounts while he's getting the news. "The help desk person has some trouble grasping the nature of the request," says fish, "but after going over the request several times, we've finally got it." But 15 minutes later, fish discovers that he's been locked out of his own computer. He calls the help desk. Yes, his account has been locked. No, the account he called about earlier is not locked. And unlocking fish's account requires documented authorization from the site contact — that's fish — but will require fish to log in to authorize it. "I finally demand that the issue be escalated to Level 2 support," fish sighs. "That person uses common sense, quickly verifies my identity and promptly unlocks my account."

» **Keep Sharky working.** Send me your true tale of IT life at [sharky@computerworld.com](mailto:sharky@computerworld.com). You'll score a sharp Shark shirt if I use it.

## Why Can't You Be More Like Him?

This factory floor is getting a new custom application, and the pilot fish who oversees the plant's IT knows it will require new, beefier PCs. He raises that issue at the implementation meeting — and gets shot down by the managers. But during a lunch break, the outside consultant who will actually write the specs pulls fish aside and asks what he thinks is needed. "I listed things such as mirrored hot-swappable drives, redundant power supplies, heavy-duty cases and extra cooling fans, all to be used in locations where a PC failure could shut down a line," says fish. A few days later, the consultant's proposal arrives — complete with specs for new PCs identical to what fish asked for. "The engineer handling the project came to me with the specifications and told me to find a PC that met the listed specifications,"

fish says. "Then he added, 'See, it was good to leave this to the company doing the work, because they know what they're doing!'"

## Circular Logic, Tight Loop

IT tech heads for greener pastures, and the specialized system he's been

supporting for more than a decade is assigned to this pilot fish because he's the least-senior person in the group. "A year later, a new product line was introduced that had the same functions and plenty more," says fish. "To my surprise, I was given the go-ahead to make the purchase and upgrade our systems. Project plans were cre-

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OPINION

# PRESTON GRALLA

## Memo to Nadella: Copy IBM

Microsoft's situation in 2014 is eerily similar to IBM's in the late 1980s.

**C**AN A COMPANY that's seen as a technology dinosaur re-establish itself as a powerful and profitable leader on the cutting edge? It has happened before, and if Microsoft CEO Satya Nadella wants a primer on how it's done, he need only look at Microsoft's onetime partner IBM.

Much like Microsoft, IBM spent years at the top, acclaimed as an innovative and seemingly all-powerful company. Both were at one time the default vendor for a lot of IT departments. But by the late 1980s (about the time that Microsoft was really coming into its own), IBM had become a bloated and slow-moving behemoth, living off the glory days of the mainframe and tied to low-margin businesses. The PC was ascendant, and though IBM had had much to do with that, it was having a hard time cashing in amid cutthroat competition. Worse, the new client/server architecture was seriously undermining its mainframe business. IBM flailed as it tried to set things right, at one point organizing itself into business units that operated somewhat like separate fiefdoms.

Earnings, which had consistently been above \$5 billion in the early 1980s, fell to \$3 billion by 1989. In 1992, IBM had what was then the biggest one-year loss in U.S. history, a whopping \$8.1 billion.

The following year, IBM had a new CEO, Louis Gerstner, who undertook a radical makeover. The company abandoned commodity, low-margin products such as hard drives and personal printers and eventually sold off its PC business to Lenovo. It invested in middleware and targeted high-margin businesses, refashioning itself as a global services company and technology integrator.

IBM's labs thrived as well. They helped transform the company's image, from doddering has-been to an acknowledged leader in artificial intelligence and data analytics. Some high-profile publicity stunts helped, but only because the technology behind them was solid. In 1997, IBM's Deep Blue computer beat world chess champion Garry Kasparov in a six-game match. In 2011, its

Watson AI machine dominated on *Jeopardy!* as it beat two previous champs. Today, Watson technology is being commercialized, making decisions about lung cancer treatments at Memorial Sloan Kettering Cancer Center.

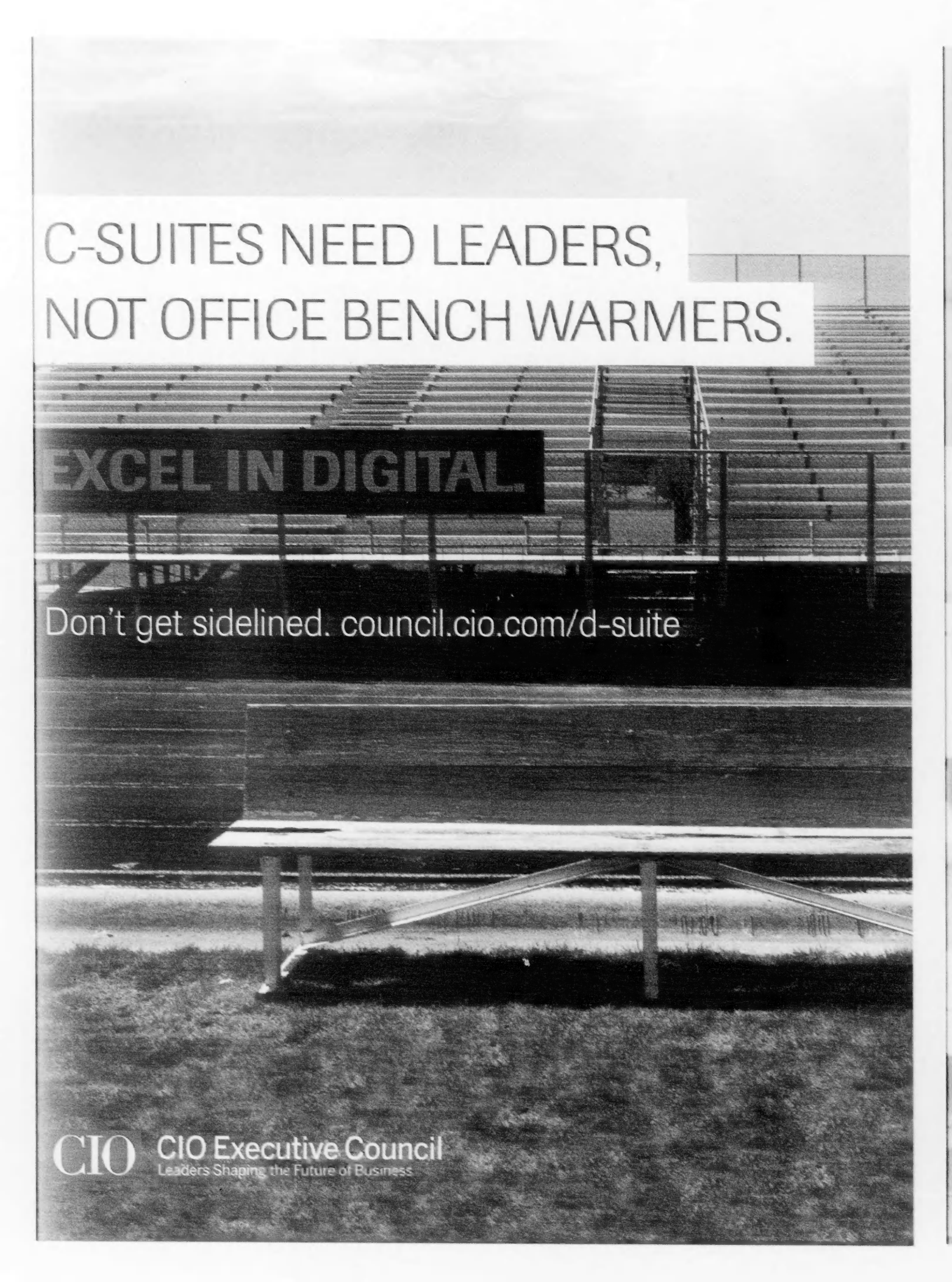
Microsoft's situation in 2014 is eerily similar to IBM's in the late 1980s. Windows is its mainframe, undermined by newer technologies that it hasn't been able to do much with, beyond offering a few also-ran products. Chief among these is mobile, which is giving companies like Google and Apple a side door into enterprises that once would never have looked beyond Microsoft.

So what can Nadella learn from IBM? Plenty. Most important is to follow IBM in becoming a services company while turning away from what had been its greatest strength — hardware in IBM's case and software in Microsoft's. Nadella has started doing this, by allowing Nokia to sell Android phones that carry Microsoft services, for example, and by giving away Windows to manufacturers of devices under 9 inches, because those devices will carry Microsoft services.

But Nadella still hasn't completely abandoned the business strategy he inherited from Steve Ballmer, which included devices as well as services. Nadella should take a page from IBM and abandon hardware as well — it's a low-margin business, and Microsoft can't compete there. The company has already racked up \$1.2 billion in losses on its Surface line, and more losses are certainly on the way.

If Nadella follows IBM's lead, it won't take 20 years to restore Microsoft's lost luster. Within five, it could again be in the forefront of the technology industry, not trying to play catch-up. ♦

Preston Gralla is a *Computerworld.com* contributing editor and the author of more than 35 books, including *How the Internet Works* (Que, 2006).



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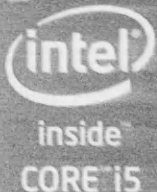


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